**IT Applications, Unit 4**

**Ch 6, Developing a solution using spreadsheet software, p 192-213**

Case Study: Point Pleasant Social Service Program – organisational outline and current practice

**Designing spreadsheet solutions and output**

1. Describe what is involved in the solution design stage.

The design stage involves planning the spreadsheet structure, any relationships between entities, the appearance of the information, creating the test plan and devising the evaluation criteria.

**Spreadsheet Design Tools**

Elaborate under each of the following design tools:

1. IPO chart

An IPO chart is used during the design process to clearly identify the solution’s input, output and the processing steps required to transform the data into information.

1. Flow chart, (list what each of the symbols mean from fig. 5-10.

The use of flowcharts in the design of a solution is described in Chapter 5. You will recall that a flowchart is used to graphically represent, in a logical order, the steps required to create a solution or a procedure to use the solution.

1. Formula list

A formula list is similar to a data dictionary and shows a detailed list of the formulas to be used to achieve each bit of output identified in the IPO chart. Although we are getting closer in the design process to writing out software-specific formulas, the formula list is still written in plain English with lots of explanation.

1. Structure chart

A structure chart is a graphic representation of how the spreadsheet solution might work. Typically, a solution will be made up of more than one sheet in a workbook file, the structure chart shows how each of these worksheets relate to each other.

1. Layout diagrams

A layout diagram shows the basic layout of each type of worksheet in the spreadsheet solution.

**Formats and conventions, p 202-**

1. list under each of the following subheadings the major formats and conventions that apply to spreadsheets:
   1. numerical information

* Numbers are naturally right-aligned in columns; this is important for validation.
* Money values usually have two decimal places or none.
* Align decimal points by using a consistent number of decimal places.
* Percentages in columns appear with the percentage symbol at the top of the columns rather than with the data
  1. financial reports
* Use a space or a comma to separate numbers greater than 999.
* Use italics to indicate addition or subtraction.
* Subtotals have a single line above the totals.
* Include $ sign in column headings rather than next to each money value.
* Right-align dates to allow for double figures.
  1. charts and graphs
* Graphs and charts must have titles identifying the name of the organisation and the purpose of the graph or chart.
* The x-axis and the y-axis must be labelled.
* Use a key if more than one set of data is provided on the same graph or chart.
* Include author identification and/or source of data, date and a filename(if appropriate).
* Include the unit of measurement on the relevant axis.

1. Describe the file naming conventions for spreadsheets.

The filename of a spreadsheet ought to indicate its purpose and any time period it covers.

**Designing a macro**

1. What is a macro?

A macro is an automated series of tasks.

**Validation**

1. Describe each of the following types of validation used in a spreadsheet:
   1. Range checking

Range checking involves checking to ensure that data falls within a certain “range”.

* 1. Existence checking

If your spreadsheet is dealing with product codes, a LOOKUP() formula can be used to check the existence of a code in another worksheet table.

* 1. Conditional formatting

Check the conditional of the spreadsheet.

* 1. Data type checking

Check the accurate of the typing in data.

* 1. Restricted data entry

To restricted data entry range.

* 1. Validation alerts

As part of the data entry process, electronic data validation methods need to alert the user that the data being entered does not adhere to the validation rules.

**Planning to test a spreadsheet solution**

1. What is the difference between validation and testing?

Validation is involved with input whilst testing is concerned with the solution itself and output.

1. When is the test plan or test table created?

Plan and table should be created in the design stage.

1. Attributes or properties to a spreadsheet solution that need to be tested; elaborate under each of the following testing types:
   1. Functionality testing

The functionality of a system relates to the activities or actions that it was designed to carry out. When testing functionality, it is important to look at the original problem and determine if the solution meets the organisation’s needs.

* 1. Presentation testing

During the design phase of the problem-solving methodology , a decision must be made on the appropriate format of the solution.

* 1. Usability testing

All spreadsheets, whether they are simple worksheets or complicated solutions with macros, need to be user-friendly. The information being conveyed should be easily accessible to the users.

* 1. Accessibility testing

A spreadsheet solution needs to be easily accessible.

* 1. Communication of message

The important information presented in the solution, whatever the format, should be clear and obvious.

**Evaluating the solution and output**

1. What does evaluation consider?

Evaluation considers the efficiency and the effectiveness of the solution. It usually takes place after the solution has been implemented for a period of time, often between three and six months.

1. What information needs to be gathered?

The evaluation stage is similar to the analysis stage in terms of fact-finding.

1. Who is best to undertake the evaluation?

User.

1. When are the evaluation criteria developed?

The evaluation criteria are developed in the design stage of the problem-solving methodology so that the system designers know which features to include.